

R E M A R K S

- Claims 1 to 24 and 26 to 42 will be pending upon entry of this Amendment.
- Claim 1 has been amended herein.
- Claim 25 was cancelled without prejudice in a previous response.
- Claim 1 will be the only independent claim pending upon entry of this Amendment.

Rejection of claims 1, 6-24 and 26-42 under 35 USC §103(a)

Claims 1, 6-24 and 26-42 stand rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over WO 02/15255, filed August 11, 2000, by Samantha Tan (hereinafter "Tan") in view of U.S. Patent Application No. 6,488,037, filed August 17, 2000, and issued December 3, 2002, to Richard L. Guldi (hereinafter "Guldi") and U.S. Publication No. 2003/0136428, filed January 23, 2002, by Ole Krogh (hereinafter "Krogh").

Claim 1 has been amended to recite, in part, "wherein purging using the continuous nitrogen gas stream continues during ultrasonication of said silicon carbide materials in the aqueous solution and in the bath of deionized water; wherein purging the at least one opening within each of the silicon carbide materials: blocks the migration of the aqueous solution of inorganic acid to a base material; and occurs before placing the silicon carbide material in the solution." Applicant submits that nowhere in any of the

references is there any teaching or suggestion that the silicon carbide materials are continuously purged with a nitrogen gas stream during ultrasonication of the silicon carbide materials in both the aqueous solution and bath of deionized water, and the purging occurs before immersion in a solution, in addition to the other claimed features, as presently claimed.

As stated in the Office Action, "the combination of Tan and Guldi does not teach purging at least one opening within each of the silicon carbide materials using a continuous flow of nitrogen gas stream; wherein the purging the opening within each of the silicon carbide materials blocks migration of the aqueous solution of inorganic acid to a base material." Further, the Office Action holds out *Krogh* as disclosing the claimed feature of ultrasonically treating the silicon carbide material in an aqueous inorganic acid solution after the purging has begun. Applicant respectfully submits that contrary to the assertions in the Office Action, *Krogh* does not cure the deficiencies of the *Tan* and *Guldi* references.

As stated on page 10 of the Final Office Action, "It is noted that the features upon which applicant relies (i.e., purging the openings of the silicon carbide materials before placing them in the solution (pg 11 of the remarks) are not recited in the rejected claims." Applicant has amended claim 1 to include the feature "wherein purging the at least one opening within each of

the silicon carbide materials...occurs before placing the silicon carbide material in the solution." None of the references disclose or suggest this feature. As described in the previous response, at most, *Krogh* describes partially immersing the component in a cleaning solution, such that some of the cleaning solution may remove the residue from the holes. "**After** the component is at least partially immersed in the cleaning solution," the non-reactive gas is flowed through the holes of the component. See, e.g., para. [0013] of *Krogh* (*emphasis added*). The presently claimed invention, on the other hand, describes purging the openings of the silicon carbide materials **before** placing them in the solutions such that the continuous flow of nitrogen blocks the migration of the aqueous solution of inorganic acid to a base material.

Additionally, as stated on page 11 of the Office Action, "the claims merely requires purging continue during the aqueous solution step." This feature is nowhere shown in any of the references, and in particular, the feature is not shown in *Krogh*, despite the suggestion in the Office Action. Namely, *Krogh* neither discloses nor suggests "wherein purging using the continuous nitrogen gas stream continues during ultrasonication of said silicon carbide materials in the aqueous solution," as presently claimed. Rather, *Krogh* only describes flowing non-reactive gas after the electrostatic chuck is immersed in an acidic solution. After the immersion step, the electrostatic chuck is **removed** from the acidic solution bath, rinsed with

deionized water and **then** ultrasonically rinsed in a deionized water bath. In other words, *Krogh* does **not** describe ultrasonically materials in an aqueous solution of inorganic acid, but instead only describes ultrasonically the chuck in deionized water. See e.g., paras. [0013]-[0014] of *Krogh*. Additionally, nowhere in *Krogh* is there any indication that the step of flowing non-reactive gas continues during the ultrasonically step, or even after the electrostatic chuck is removed from the acidic solution bath. Applicant further respectfully submits that there is no reason to continue the flow of non-reactive gas in *Krogh* during the steps following the removal from the acidic solution bath, as these subsequent steps merely involve deionized water and not any sort of cleaning solution. The presently claimed invention, on the other hand, continues purging the openings during the ultrasonication steps. As described in Applicant's specification, "the nitrogen gas purge continues until the final cleaning operation of the bonded and sintered silicon carbide material is complete. The nitrogen gas purge prevents migration of chemicals, due to capillary action, from the various chemical baths in method 200 to the anodized aluminum base of the wafer-showerhead, for example." See, e.g., page 8, lns. 11-18 of Applicant's specification. These arguments were made in the previous response, and were not addressed by the Examiner in the pending office action. Instead the Examiner states that the claims do "not require purging to continue during the deionized water step." Applicants respectfully submit that,

"When determining whether a claim is obvious, an examiner must make 'a searching comparison of the claimed invention - *including all its limitations* - with the teaching of the prior art.'" *In re Wada and Murphy*, Appeal 2007-3733 (BPAI 2008)(citing *In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995)). "Thus, 'obviousness requires a suggestion of all limitations in a claim.'" *Id.* (citing *CFMT, Inc. v. Yieldup Intern. Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003)(citing *In re Royka*, 490 F.2d 981, 985 (CCPA 1974))(emphasis added). While, as described above, Applicant does not believe any of the references, in any combination, disclose or suggest all of the claimed limitations, solely to further prosecution, Applicant has amended claim 1 to include the feature, "wherein purging using the continuous nitrogen gas stream continues during ultrasonication of said silicon carbide materials in the aqueous solution and in the bath of deionized water." Applicant submits that none of the references disclose or suggest this feature.

In light of the foregoing, Applicant submits that the features of amended independent claim 1, and claims 6-24 and 26-42, which depend therefrom, are not disclosed or suggested by any of the references, for at least the reasons described above. Accordingly, withdrawal of the §103 rejections of the pending claims is requested.

Rejection of claims 2 and 3 under 35 USC §103(a)

Claims 2 and 3 stand rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over *Tan* in view of *Guldi* and

Krogh and further in view of Applicant's admitted prior art (AAPA).

Regarding claims 2 and 3, as described above *Tan*, *Guldi*, or *Krogh*, alone or in any combination, do not disclose or suggest all of the features of independent claim 1; for example, none of *Tan*, *Guldi*, or *Krogh*, disclose or suggest, "wherein purging using the continuous nitrogen gas stream continues during ultrasonication of said silicon carbide materials in the aqueous solution and in the bath of deionized water; wherein purging the at least one opening within each of the silicon carbide materials: blocks the migration of the aqueous solution of inorganic acid to a base material; occurs before placing the silicon carbide material in the solution," as presently claimed. Applicant submits that AAPA does not cure the deficiencies of the *Tan*, *Guldi*, or *Krogh* references. As claims 2 and 3 depend from, and incorporate the features of, independent claim 1, it is submitted that claims 2 and 3 are patentable over the cited references for at least the same reasons that claim 1 is patentable.

Withdrawal of the §103(a) rejection is accordingly requested.

Rejection of claims 4 and 5 under 35 USC §103(a)

Claims 4 and 5 stand rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over *Tan* in view of *Guldi* and *Krogh* and further in view of U.S. Patent Application No.

6,273,950, filed January 2, 2001, and issued August 14, 2001, to Makoto Kitabatake (hereinafter "*Kitabatake*")

Regarding claims 4 and 5, as described above *Tan, Guldi, or Krogh*, alone or in any combination, do not disclose or suggest all of the features of independent claim 1; for example, none of *Tan, Guldi, or Krogh*, disclose or suggest, "wherein purging using the continuous nitrogen gas stream continues during ultrasonication of said silicon carbide materials in the aqueous solution and in the bath of deionized water; wherein purging the at least one opening within each of the silicon carbide materials: blocks the migration of the aqueous solution of inorganic acid to a base material; occurs before placing the silicon carbide material in the solution" as presently claimed. Applicant submits that *Kitabatake* does not cure the deficiencies of the *Tan, Guldi, or Krogh* references. As claims 4 and 5 depend from, and incorporate the features of, independent claim 1, it is submitted that claims 4 and 5 are patentable over the cited references for at least the same reasons that claim 1 is patentable.

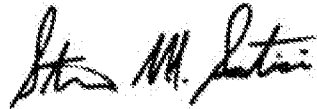
Withdrawal of the §103(a) rejection is accordingly requested.

Conclusion

The Applicants believe all pending claims are in condition for allowance, and respectfully request reconsideration and allowance of the same.

If any additional time is required, please accept this paragraph as a request for such an Extension of Time and authorization to charge the requisite extension fee to Deposit Account No. 04-1696. Please charge any new claim fees to Deposit Account No. 04-1696. If any other fees are required, please charge Deposit Account No. 04-1696. The Applicants encourage the Examiner to telephone Applicants' attorney should any issues remain.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "Steven M. Santisi". The signature is fluid and cursive, with the first name "Steven" and last name "Santisi" being more legible than the middle initial "M.".

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